

Remarks

This application has been reviewed in light of the Office Action of October 10, 2007, which was mailed in response to Applicants' Appeal Brief of July 18, 2007. As of the Office Action, claims 1, 3-25, and 27-29 were pending, and all claims are rejected. In this paper, claims 24, 25, and 27 are cancelled without prejudice and the following remarks are submitted. Reconsideration of this application is respectfully requested.

The Examiner's attention is also directed to currently co-pending application 11/059,715 also directed to the production of alloys, which is assigned to a different Examiner and for which an Office Action is also currently outstanding, for consideration as the Examiner deems fit.

Ground 1. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. 2002/0005089 to Nagata et al. or U.S. 5,567,224 to Kundrat in view of U.S. 3,234,608 to Peras (Peras). Claim 24 and its dependent claims have been cancelled without prejudice, rendering moot the rejection of Ground 1.

Ground 2. Claims 1, 4, 5, 7, 11-15, 17, 18, 20-24 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. 6,695,930 to Kuehmann et al. (Kuehmann) in view of U.S. 3,495,958 to Talmage (Talmage). Claim 1 is independent.

As understood by Applicants, the basis of the rejection is that Kuehmann teaches a method of making a martensitic steel and that Talmage allegedly teaches a high purity steel by powder metallurgy without melting of the metal. See Office Action at pg.6 referencing 2/28/07 Office Action at page 6.

Kuehmann teaches producing a steel by conventional melting and casting. Kuehmann teaches away from the present approach by using metals as the starting materials, and therefore may not be used as the basis for the rejection.

Even if it were appropriate to arbitrarily substitute the method of Talmage in place of the melting and casting method taught by Kuehmann, neither Talmage nor Kuehmann teach reducing two nonmetallic precursors without melting to form an alloy particle. Talmage teaches starting with metallic powders, not nonmetallic precursor compounds, for the major part of the

constituents of the metallic article (col. 3, lines 39-42; col. 5, lines 14-18; Example 1 at col. 8, lines 20-27). Talmage may use reducible metal oxide powders for minor portions of the constituents of the metallic article (col. 5, line 38-col. 6, line 4; Example 1 at col. 8, lines 20-27). Talmage describes his processing: "...I can start with relatively high purity metals..." (col. 3 lines 42-44). Talmage does not suggest that he can start with "nonmetallic precursor compounds." In contrast, he starts with "high purity metals." Claim 1 requires that the nonmetallic precursor compounds must furnish the constituents of the metallic article. Neither reference has such a teaching.

Thus, a prima facie case of obviousness has not been presented and the rejection should be withdrawn. For at least these reasons, the rejection as to claims 4, 5, 7, 11-15, 17, 18, and 20-23, all of which depend from claim 1, should also be withdrawn.

Claim 24 and its dependent claims have been cancelled without prejudice rendering the rejection moot as to claims 24 and 27.

Thus, rejection should be withdrawn and the claims allowed.

Ground 3. Claims 1, 4, 5, 8-11, 13-15, 17, 18, 20-25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuchmann in view of U.S. 4,820,339 to Bienvenu et al. (Bienvenu).

Kuchmann teaches producing a steel by conventional melting and casting. Kuchmann teaches away from the present approach by using conventional metals as the starting materials, and therefore may not be used as the basis for the rejection.

Bienvenu is directed to a method of making metal powders by reduction of metal salts, and merely posits that the production of alloys is a possibility, without further discussion or exemplification, all examples being drawn to the production of metals. Furthermore, Bienvenu appreciates that even this "possibility" may not be feasible. Col. 3, lines 35-50. Thus, even if one were to arbitrarily substitute the method of Bienvenu in place of the melting and casting method taught by Kuchmann, there is no teaching or suggestion that one of ordinary skill of the art reading the prospective combination of references would understand that substituting the method of Bienvenu for that of Kuchmann would be an occasion when the alloy production would be feasible versus an occasion in which the production would not be feasible.

Furthermore, Bienvenu does not specifically state that no melting occurs. In fact, Bienvenu summarizes the invention as a reduction “under conditions in which the reducible metal in the reduced metal state is *immiscible* in the [molten salt] bath.” (Col. 1, lines 55-62; see also Abstract)(emphasis added). Hawley’s Chemical Dictionary defines “immiscible” as “substances of the *same state of matter* that cannot be uniformly blended or mixed.” (emphasis added). A copy of the relevant definition is attached at Exhibit 1 hereto. In Bienvenu, reduced metal in the reduced metal state would have to be a liquid (i.e., melted) like the molten salt in order for the recitation regarding it being immiscible to make technical sense. Thus, at the very least, Bienvenu’s own summary of his invention is inconsistent Applicants’ claimed limitation that requires “without melting.”

Thus, a *prima facie* case of obviousness has not been presented and the rejection should be withdrawn. For at least these reasons, the rejection as to claims 4, 5, 8-11, 13-15, 17, 18 and 20-23, all of which depend from claim 1, should also be withdrawn.

Claim 24 and its dependent claims have been cancelled without prejudice rendering the rejection moot as to claims 24 and 27.

Thus, rejection should be withdrawn and the claims allowed.

Ground 4. Claims 16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuehmann in view of Talmage or Bienvenu and further in view of Peras.

Claims 16, 19 and 20 depend from claim 1, shown above to be allowable. Peras adds nothing helpful in this regard and does not provide a basis for altering the teachings of Kuehmann and Bienvenu or Talmage.

Thus, the rejection should be withdrawn and these claims should also be allowed.

Ground 5. Claims 1, 4, 5, 7, 11-15, 17, 20-23 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. 5,320,687 to Kipphut et al. (Kipphut) in view of Talmage.

Kipphut teaches producing a martensitic steel by conventional melting and casting. Col. 2, lines 44-48. Kipphut teaches away from the present approach by using conventional metals as the starting materials, and therefore may not be used as the basis for the rejection.

Even if it were appropriate to arbitrarily substitute the method of Talmage in place of the melting and casting method taught by Kipphut, neither Talmage nor Kipphut teach reducing two nonmetallic precursors without melting to form an alloy particle. Talmage teaches starting with metallic powders, not nonmetallic precursor compounds, for the major part of the constituents of the metallic article (col. 3, lines 39-42; col. 5, lines 14-18; Example 1 at col. 8, lines 20-27). Talmage may use reducible metal oxide powders for minor portions of the constituents of the metallic article (col. 5, line 38-col. 6, line 4; Example 1 at col. 8, lines 20-27). Talmage describes his processing: "...I can start with relatively high purity metals..." (col. 3 lines 42-44). Talmage does not suggest that he can start with "nonmetallic precursor compounds." In contrast, he starts with "high purity metals." Claim 1 requires that the nonmetallic precursor compounds must furnish the constituents of the metallic article. Neither reference has such a teaching.

Thus, a *prima facie* case of obviousness has not been presented and the rejection should be withdrawn. For at least these reasons, the rejection as to claims 4, 5, 7, 11-15, 17, 20-23 and 28, all of which depend from claim 1, should also be withdrawn.

Thus, rejection should be withdrawn and the claims allowed.

Ground 6. Claims 1, 4, 5, 9-11, 13-15, 17, 20-23 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kipphut in view of Bienvenu.

Kipphut teaches producing a martensitic steel by conventional melting and casting. Col. 2, lines 44-48. Kipphut teaches away from the present approach by using conventional metals as the starting materials, and therefore may not be used as the basis for the rejection.

Bienvenu is directed to a method of making metal powders by reduction of metal salts, and merely posits that the production of alloys is a possibility, without further discussion or exemplification, all examples being drawn to the production of metals. Furthermore, Bienvenu appreciates that even this "possibility" may not be feasible. Col. 3, lines 35-50. Thus, even if one were to arbitrarily substitute the method of Bienvenu in place of the melting and casting method taught by Kipphut, there is no teaching or suggestion that one of ordinary skill of the art reading the prospective combination of references would understand that substituting the method of Bienvenu for that of Kipphut would be an occasion when the alloy production would be feasible versus an occasion in which the production would not be feasible.

Furthermore, Bienvenu does not specifically state that no melting occurs. In fact, Bienvenu summarizes the invention as a reduction “under conditions in which the reducible metal in the reduced metal state is *immiscible* in the [molten salt] bath.” (Col. 1, lines 55-62; see also Abstract)(emphasis added). Hawley’s Chemical Dictionary defines “immiscible” as “substances of the *same state of matter* that cannot be uniformly blended or mixed.” (emphasis added). A copy of the relevant definition is attached at Exhibit 1 hereto. In Bienvenu, reduced metal in the reduced metal state would have to be a liquid (i.e., melted) like the molten salt in order for the recitation regarding it being immiscible to make technical sense. Thus, at the very least, Bienvenu’s own summary of his invention is inconsistent Applicants’ claimed limitation that requires “without melting.”

Thus, a *prima facie* case of obviousness has not been presented and the rejection should be withdrawn. For at least these reasons, the rejection as to claims 4, 5, 9-11, 13-15, 17, 20-23 and 28, all of which depend from claim 1, should also be withdrawn.

Thus, rejection should be withdrawn and the claims allowed.

Ground 7. Claims 16, 18, 19, 20, 24, 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kipphut in view of Talmage or Bienvenu and further in view of Peras.

Claims 16, 18, 19, 20 depend from claim 1, shown above to be allowable. Peras adds nothing helpful in this regard and does not provide a basis for altering the teachings of Kipphut and Bienvenu or Talmage.

Claim 24 and its dependent claims have been cancelled without prejudice rendering the rejection moot as to claims 24 and 27.

Claim 29 is independent, but is allowable for at least the reasons that claim 1 was shown above to be allowable over the prospective combination of Kipphut and Talmage or Bienvenu and because Peras fails to overcome the identified deficiencies in the references.

Ground 8. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kipphut in view of Bienvenu and Peras. Claim 25 has been cancelled, rendering moot the rejection.

CONCLUSION

For at least the reasons set forth above, Applicants respectfully request reconsideration of the Application and withdrawal of all outstanding rejections. Applicants respectfully submit that the claims are not rendered obvious in view of the cited art and thus, are in condition for allowance.

This Response has been filed within four (4) months of the mailing date of the Office Action and it is believed that no additional fees are due with the filing of this paper other than a one month's extension of time in which to file this response. The Commissioner is hereby authorized to deduct this and any other fees determined by the Patent Office to be due from the undersigned's Deposit Account No. 50-1059.

Respectfully submitted,

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